AF 1772/8

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	09/923,510	Confirmation No. 1772
Applicant	:	Grant Christiansen	
Filed	:	08/06/2001	
TC/A.U.	:	2633	
Examiner	:	Bello, Agustin	
Docket No.	:	TI-31440	
Customer No.	:	23494	

APPEAL BRIEF TRANSMITTAL FORM

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William B. Kempler 10/8/03
William B. Kempler Date

Sir:

Transmitted herewith in triplicate is an Appeal Brief in connection with the above-identified application.

Please charge $330.00 fee for filing the Brief to Deposit Account No. 20-0668.

To the extent necessary, the Applicants petition for an Extension of Time under 37 CFR 1.136. Please charge any additional fees in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 20-0668 of Texas Instruments Incorporated.

Respectfully submitted,

Texas Instruments Incorporated

William B. Kempler
Senior Corporate Patent Counsel
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(972) 917-5452

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Appeal Brief
(3 copies)
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Dear Sir:

The following Appeal Brief is respectfully submitted in support of an appeal of the final rejection of claims 9, 10, 12-14 and 22-25 in connection with the above-identified application. The final rejection was mailed on 04/11/2003, and the advisory action mailed 07/14/2003. A Notice of Appeal was received by the Office on 08/11/2003.

REAL PARTY IN INTEREST

The real party in interest is Texas Instruments Incorporated.

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RELATED APPEALS AND INTERFERENCES

There are no appeals or interferences known to Applicant's representative which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

STATUS OF THE CLAIMS

Claims 9, 10, 12-14 and 22-25 stand rejected. The Application was filed on 08/06/2001 with 25 claims. Claims 1-8, 11 and 15-21 were canceled and claims 9, 10, 12, 13 and 22 were amended in a response mailed on 11/25/2002. All of the remaining claims 9, 10, 12-14 and 22-25 were rejected in the Final Rejection mailed 04/11/2003.

STATUS OF THE AMENDMENTS

In response to the Final Rejection of 04/11/2003, Applicants request reconsideration and did not make amendments to the claims. The amendment mailed on 11/25/2002 has been entered.

SUMMARY OF THE INVENTION

The present invention relates generally to optical wireless communications, and more specifically to providing imbedded control information within the optical wireless link (page 2, lines 1-3).

One aspect of the invention provides for an optical wireless link. The optical wireless link includes a photodetector configured to receive a modulated light beam conveying data. The optical wireless link also includes a control circuit coupled to the photodetector, the control circuit receiving the data conveyed by the modulated light beam, and extracting therefrom embedded control information. The optical wireless link further includes a processor coupled to the detector and receiving therefrom the control information and generating in response thereto beam alignment signals. Additional features of the optical wireless link include a beam transmitter coupled to the processor and receiving therefrom

the beam alignment signals, the beam transmitter adjusting alignment of a light beam in response to the beam alignment signals (page 6, lines 19-28).

In another aspect of the invention, a system for communicating a data stream between first and second data devices has a first data source/sink generating a stream of data packets. A first optical wireless device is coupled to receive the stream of data packets from the first data source/sink. The first optical wireless device includes a switch configured to receive the stream of data packets and to insert a line of control packets therein. It also includes a light beam transmitter coupled to the switch and configured to transmit the stream of both data packets and control packets onto a single modulated light beam. The system also includes a second optical wireless device which includes a photodetector configured to receive the single modulated light beam. A second switch is configured to receive the stream of data packets and control packets from the photodetector and extract the control packets therefrom. The second optical wireless device includes a second light beam transmitter and a light beam transmitter and a light beam transmitter alignment unit coupled to a light beam transmitter and configured to align the second light beam transmitter in response to the control packets. A second data source/sink is coupled to the second optical wireless device and receives a stream of data packets therefrom (page 8, line 8 through page 14, line 28).

With regard to the claims, claims 9 and 22 are described at page 8, line 8 through page 14, line 28. Claim 10 is described at page 17, line 9 through page 18, line 17. Claim 12 is described at page 14, line 16 through line 28. Claim 13 is described at page 15, line 8 through page 16, line 7. Claim 14 is described at page 9, line 6 through page 10, line 2. Claim 23 is described at page 15, line 26 through page 16, line 7. Claim 24 is described at page 24, line 23-27. Claim 25 is described at page 8, lines 24-26.

ISSUES

The single issue in this appeal is whether claims 9, 10, 12-14 and 22-25 are unpatentable over Willebrand, U.S. Patent 6,239,888 in view of Reichman, U.S. Patent 6,535,716.

GROUPING OF THE CLAIMS

Each of the following groups of claims as contained in the attached appendix, are independently patentable, and the rejected claims of these groups stand or fall together for the reasons more clearly set forth hereinbelow:

GROUP 1: Claims 9, 10, 12-14

GROUP 2: Claims 22-25

Group 1 contains claims 9, 10, 12-14 which stand or fall together.

Group 2 contains claims 22-25 which stand or fall together. Claim 9 is directed to an optical wireless link whereas claim 22 is directed to a system for communicating a data stream between first and second data devices. Accordingly, claim 22 is separately patentable from claim 9 and the claim and the claims of group 1. Claims 23-25 are dependent directly on claim 22 and therefore stand or fall along with claim 22.

ARGUMENTS

The Examiner rejects Claims 9-10, 12-14 and 22-25 under 35 U.S.C. 103(a) as being unpatentable over Willebrand in view Reichman, et al. The Examiner states that Willebrand teaches an optical wireless link, but differs from the claimed invention by failing to specifically teach data packets time division multiplexed with control packets into a single package stream. The Examiner states that it is clear that Willebrand teaches that data and control information are multiplexed onto a modulated light beam and specifically refers to reference numerals 24, 46 in Fig. 11 and column 13, lines 12-16 as well as column 15, line 6-10. The Examiner also states that Willebrand teaches that control and data signals are encoded with each other and that a variety of different techniques are known and available for encoding and decoding information onto a (sic) from a fundamental wavelength and refers to column 6, lines 37-48. The Examiner

states that Reichman, et al., in the same field of endeavor, would have suggested time division multiplex control and data packets to one skilled in the art. The Examiner further states that is clear the teachings of Willebrand at column 6, lines 37-48 and reference numeral 46, 48 in Fig. 11 and the teachings of Reichman, et al. in column 4, lines 54-62 would have suggested that time division multiplexing of data and control packets to one skilled in the art. The Examiner states that one skilled in the art would have been motivated to time division multiplex control and data packets in order to have the ability to send control information at predetermined intervals of time. The Examiner thus concludes that it would have been obvious to one skilled in the art at the time the invention was made to have time division multiplex control and data packets, as taught by Reichman, et al. in the device of Willebrand.

This rejection is respectfully traversed. The Examiner refers to column 13, lines 12-16. The Examiner reads the term "multiplexed" as being time division multiplexing, whereas there is no suggestion that time division multiplexing will work in the system of Willebrand. The Examiner has specifically referred to column 6, lines 37-48 and reference numerals 46, 48 in Fig. 11. However, all of the multiplexing techniques referred to in this portion of the specification, including the wave division multiplexing (WDM), not underlined by the Examiner on the copy of the reference sent to Applicants, are frequency division multiplexing. Thus, there is no justification for the Examiner's leap of faith analysis that's a term "multiplexing" in the column 13 description refers to time division multiplexing. Furthermore, referring to column 12, lines 54 through the end of the column, which have been underlined by the Examiner in the copy sent to applicant, the text reads "...one of the signals communicated between the link head stations...is used to communication status and control information between the link head stations..." (emphasis added). It should be noted that Willebrand refers to multiple signals in this portion of the description, which is commensurate with frequency division multiplexing and specifically not commensurate with time division multiplexing. Furthermore, it should

be noted that the portion of column 6 which the Examiner has cited several times in his rejection recites, in pertinent part: "The optical signals conducted over the free space links 24 and fiber links 26 are preferably laser beams whose fundamental frequency or wavelength is encoded by signals of other frequencies which contain the information to be communicated." (emphasis added). Thus, despite all the statements made by the Examiner, it is clear that Willebrand only contemplated frequency division multiplexing.

The Examiner cites Reichman, et al. as being in the same field of endeavor. Although the Examiner has not stipulated what the "same field of endeavor" is, Applicants do not believe that this is correct. Reichman, et al. does not relate to optical systems in which control information regarding the aiming of the optical transmitter and receiver is embedded within the optical wireless link. In fact, the problem in Reichman, et al. is quite different than the present invention. In Reichman, et al., a hub computer is arranged in a network with a plurality of remote computer terminals to form a mesh communications network. The purpose of the control signals is to assign the frequencies for the communication between terminals on the mesh. Thus the art is not analogous to the present invention.

Time division multiplexing utilizing packets requires additional circuitry to "packetize" the data and further circuitry to insert the control packet into the data stream. In addition, it requires circuitry to encode the packet as a control packet at the transmission side and decode the packet as a control packet and route it to the control circuitry at the receiving side. Reichman, et al. states at column 4, lines 37-40: "...system access is preferably provided by frequency and time division multiplexing of the monitor and control signals." (emphasis added). Therefore, one applying the teaching of Reichman, et al. to Willebrand where frequency multiplexing is only used, would not be guided to time division multiplexing. Furthermore, although the Examiner states that one skilled in the art would have been motivated to time division multiplex control and data packets in order to have the ability to send control information at

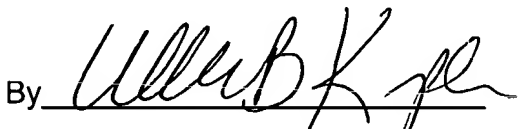
predetermined intervals of time, there is no showing or suggestion in Willebrand that time division multiplexing is appropriate for such optical systems, and thus there is no teaching or suggestion to combine the two references.

CONCLUSION

For the above reason, Applicants respectfully submit that the Examiner's final rejection of claims 9, 10, 12-14, 22-25 under 35 U.S.C. 103(a) as being unpatentable over Willebrand in view of Reichman is not properly founded in law. Applicants respectfully request that the Board of Patent Appeals and Interferences so find and reverse the Examiner's rejections of the claims.

Please charge any fees in connection with the filing of this paper, including extension of time fees, to the Deposit Account No. 20-0668 of Texas Instruments Incorporated. **This form is submitted in triplicate.**

Respectfully submitted,
Texas Instruments Incorporated

By 

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APPENDIX

Canceled claims: 1-8, 11 and 15-21

9. (previously presented) An optical wireless link comprising:

a photodetector configured to receive a single modulated light beam;

the modulated light beam conveying data packets and control packets time multiplexed into a single packet stream;

a control circuit coupled to the photodetector, the control circuit

receiving the data packets and control packets conveyed by the single modulated light beam, and

extracting therefrom embedded control packets;

a processor coupled to the control circuit and receiving therefrom the control packets and generating in response thereto beam alignment signals;

a beam transmitter coupled to the processor and receiving therefrom the beam alignment signals, the beam transmitter adjusting alignment of a light beam in response to the beam alignment signals.

10. (previously presented) The optical wireless link of claim 9 further comprising:

a servo detector adjacent the photodetector and configured to detect light intensity information; and

a control information generator coupled to the servo detector and configured to generate control information from the light intensity information received from the servo detector; and wherein

the control circuit embeds the control packets into the stream of data packets to be conveyed by the beam transmitter.

12. (previously presented) The optical wireless link of claim 9 wherein said control logic comprises a switch configured to detect control information on the basis of a destination address contained within the control packet.

13. (previously presented) The optical wireless link of claim 9 wherein the data packets are Ethernet frames and wherein the control packets are SubNetwork Access Protocol packets.

22. (previously presented) A system for communicating a data stream between a first and second data devices comprising:

a first data source / sink generating a stream of data packets;

a first optical wireless device coupled to receive the stream of data packets from the first data source / sink and including:

a switch configured to receive the stream of data packets and to insert therein alignment control packets;

a light beam transmitter coupled to the switch and configured to transmit the stream of both data packets and control packets on a single modulated light beam;
a second optical wireless device comprising:
a photodetector configured to receive the single modulated light beam;

a second switch configured to receive the stream of data packets and control packets from the photodetector and to extract therefrom the control packets;

a second light beam transmitter; and

a light beam transmitter alignment unit coupled to the second light beam transmitter and configured to align the second light beam transmitter in response to the control packets; and

a second data source / sink coupled to the second optical wireless device and receiving therefrom the stream of data packets.

23. (previously presented) The system of claim 22 wherein at least one of the first data source / sink and the second data source / sink is a computer network.

24. (previously presented) The system of claim 22 wherein at least one of the first data source / sink is a telephone.

25. (previously presented) The system of claim 22 wherein at least one of the first data source / sink is a computer.